APRIL, 1904 NUMBER 28

# *The University of North Carolina*

# RECORD

DESCRIBING

## *The Departments of Medicine and Pharmacy*

CHAPEL HILL
PUBLISHED BY THE UNIVERSITY
1904

THE UNIVERSITY PRESS
CHAPEL HILL

# THE DEPARTMENT OF MEDICINE.

## FACULTY AT CHAPEL HILL.

FRANCIS PRESTON VENABLE, PH.D., LL.D., PRESIDENT.

RICHARD HENRY WHITEHEAD, A.B., M.D., *Dean of the Department at Chapel Hill and Professor of Anatomy and Pathology.*

CHARLES STAPLES MANGUM, A.B., M.D., *Professor of Materia Medica and Demonstrator of Anatomy.*

ISAAC HALL MANNING, M.D., *Professor of Physiology and Bacteriology.*

JOSHUA WALKER GORE, C.E., *Professor of Physics.*

HENRY VAN PETERS WILSON, PH.D., *Professor of Biology.*

CHARLES BASKERVILLE, PH.D., *Professor of Chemistry.*

ALVIN SAWYER WHEELER, PH.D., *Associate Professor of Organic Chemistry.*

WILLIAM CHAMBERS COKER, PH.D., *Associate Professor of Botany.*

JAMES EDWARD LATTA, A.M., *Instructor in Physics.*

ROYALL OSCAR EUGENE DAVIS, PH.D., *Instructor in Chemistry.*

CLARENCE ALBERT SHORE, S.M., *Instructor in Biology.*

LEONE BURNS NEWELL, A.B., *Assistant in Anatomy and Pathology.*

JOHN BENSELL CRANMER, *Assistant in Anatomy.*

WILLIAMS MCKIM MARRIOTT, *Assistant in Chemistry.*

WILLIAM ASBURY WHITAKER, JR., *Assistant in Chemistry.*

LUTHER BYNUM LOCKHART, *Assistant in Chemistry.*

WADE HAMPTON OLDHAM, *Assistant in Chemistry.*

GREEN RAMSEY BERKELEY, A.B., *Assistant in Biology.*

## FACULTY AT RALEIGH.

HUBERT ASHLEY ROYSTER, A.B., M.D., *Dean of the Department at Raleigh and Professor of Gynecology.*

WISCONSIN ILLINOIS ROYSTER, M.D., *Professor of Medicine.*

AUGUSTUS WASHINGTON KNOX, M.D., *Professor of Surgery.*

RICHARD HENRY LEWIS, A.B., M.D., *Professor of Diseases of the Eye and of General Hygiene.*

KEMP PLUMMER BATTLE, JR., A.B., M.D., *Professor of Diseases of the Ear, Nose and Throat.*

ANDREW WATSON GOODWIN, M.D., *Professor of Diseases of the Skin, and of the Genito-urinary System.*

HENRY McKEE TUCKER, M.D., *Professor of Obstetrics.*

JAMES McKEE, M.D., *Clinical Professor of Mental and Nervous Diseases.*

JAMES WILLIAM McGEE, JR., M.D., *Lecturer on Therapeutics.*

ROBERT SHERWOOD McGEACHY, M.D., *Chief of Dispensary and Lecturer on Anaesthetics.*

WILLIAM DeBERNIERE MacNIDER, M.D., *Demonstrator of Clinical Pathology.*

MARSHALL CRAPON GUTHRIE, JR., *Assistant Demonstrator of Clinical Pathology.*

### FOUNDATION.

Instruction in Medicine is given in two distinct schools, one situated at the seat of the University, Chapel Hill, and the other in the city of Raleigh.

The Department at Chapel Hill furnishes instruction in the fundamental branches of Medicine—those studies which constitute the scientific basis of medicine and surgery, and which compose the first two years of the medical curriculum. This Department was founded in 1890. In 1898 it was admitted to membership in the Association of American Medical Colleges; in 1901 it was incorporated as an integral part of the University on the same footing as the graduate and other professional departments.

Owing to the absence of clinical facilities at Chapel Hill, instruction in the third and fourth years of the medical curriculum is conducted by the Department at Raleigh. This Department was opened in the fall of 1902. It enjoys the hospital and other clinical advantages to be found in a city. Its course is limited to the curriculum of the third and fourth years.

## THE DEPARTMENT AT CHAPEL HILL.

### THE GENERAL PLAN OF INSTRUCTION.

The course of instruction provided by the Department at Chapel Hill

extends over a period of two college years, and its successful completion entitles students to entrance into the third year of high-grade medical colleges.

In the arrangement of the courses of study the attempt is made to follow what would seem to be their natural sequence. In the *first year* the student devotes most of his time to anatomical and chemical studies. The studies of Gross and Microscopic Anatomy proceed side by side. In the spring, by which time the student has obtained sufficient knowledge of Chemistry and Anatomy, the study of Physiology is begun.

In the *second year* the study of Anatomy and Physiology is continued. The work in Chemistry is done in the laboratory and is devoted to Qualitative Analysis, Physiological Chemistry and Toxicology, and continues throughout the year. Pathology is taken up at the beginning of this year, and continued for nine months. Materia Medica is begun in the spring term, after the course in Physiology has been completed. In this year also the class practices exercises in Minor Surgery.

It is still necessary to continue courses in Physics and General Chemistry for the benefit of those students who have not had the advantage of adequate instruction in those subjects. Students who have had courses in Physics and General Chemistry should elect General Biology and Embryology during the first and second year respectively.

The Department possesses exceptional advantages for its work. It has an adequate corps of trained instructors and good laboratories for the various branches of study; the classes are small, so that the methods of instruction required by modern educational ideals are carried on with comparative ease, and each student has the opportunity of seeing the various demonstrations and experiments, receiving direct personal instruction; the students live in the environment of a University, and enjoy all the advantages it offers to young men; moreover, all the laboratories of the academic department as well as the courses in Physics, Chemistry and Biology are open to medical students.

The majority of the work in most of the branches is carried on in the laboratories. Lectures are not neglected and the value of good text-books is appreciated; but it is considered especially desirable that the student should be brought face to face with nature, so that he will not be satisfied

with the mere acquisition of facts, but will have his powers of observation and judgment, so essential to the physician, stimulated and cultivated.

## THE CURRICULUM.

The course is arranged in two sessions of nine months each, as follows:

### First Year.

Physics. Two hours a week.

General Chemistry. Three lecture hours a week; two hours, laboratory.

Histology. Three hours a week.

Anatomy. Five hours a week until November; eight hours a week during November, December, January and February.

Physiology. Three hours a week during January and February; five hours a week during March, April and May.

### Second Year.

Chemistry. Six laboratory hours a week.

Anatomy. Six hours a week until November; eight hours a week during November, December, January and February.

Bacteriology. Six hours a week, fall term.

Physiology. Three lecture hours and six laboratory hours a week, fall term.

Pathology. Four hours a week during January and February; eight hours a week during March, April and May.

Materia Medica. Five hours a week, spring term.

Minor Surgery. Three hours a week for six weeks, fall term.

## COURSES OF INSTRUCTION.

### Chemistry.

Professor Baskerville, Dr. Davis and Mr. Marriott.

1. General Descriptive Chemistry. The elements are studied in a syste-

matic manner. The laws governing their combination, and the compounds resulting, are considered with appropriate reference to their occurrence and relationships to medicine. The latter part of the course is taken up with organic chemistry. *First year, three hours*, lectures, and *two hours*, laboratory.

Texts: Venable and Howe's *Inorganic Chemistry According to the Periodic Law*, and Remsen's *Organic Chemistry*, supplemented by lectures and quizzes.

Associate Professor WHEELER, Messrs. MARRIOTT and WHITAKER.

9. Qualitative Analysis and Toxicology. Laboratory work with lectures. The behavior of the elements and their compounds is studied in the laboratory. Practice is given in the analysis of known and unknown mixtures with especial reference to the detection of poisons and determination of the purity of drugs. *Second year (September to February), six hours.*

Text: Venable and Wheeler's *Qualitative Chemical Analysis* and the professor's notes.

This course supplements the lectures given by Professor Mangum on Toxicology.

10. Physiological Chemistry including Urinary Analysis. Lectures and laboratory work. The latter includes examination of bones, blood, gastric and intestinal juices, bile, milk, urine and foods. *Second year (February to June), six hours.*

Texts: Halliburton's *Chemical Physiology* and Jackson's *Laboratory Methods in Physiological Chemistry.*

## Physics.

Professor GORE.

Elementary Physics. The fundamental facts of Physics are studied with some special attention to heat and electricity. Text-book, lectures and experiments. *Two hours.*

## Biology.

In the biological courses some record of each day's work is kept by the student. This record consists chiefly of the sketches made directly from

the dissection or from preparations under the microscope. The importance of making a figure (even a poor one) of the object under study, cannot be overestimated as an aid to observation. In addition to the usual written examinations, practical examinations on the work done in the laboratory are held.

Professor Wilson.

1. General Biology.

Representative types of the great groups of organisms are dissected and studied microscopically. The forms range on the one side from the unicellular animals to the vertebrates, and on the other from the unicellular plants to the phanerogams. In the lectures the forms to be studied are briefly described, their relations are pointed out, and the principles which they illustrate are explained. The fundamental facts concerning living things are thus learned directly from nature in such a way as to develop the power of accurate observation, skill in handling instruments, and method in the recording of notes.

Elective in the first year. *Five hours.*

Text: Morgan.

3. Vertebrate Histology.

The principal tissues and organs of the vertebrate body are here studied according to the modern methods of microscopy. The individual student is instructed how to make, study and sketch microscopic preparations, including paraffin and celloidin sections, macerations, and mounts of fresh tissue.

Required in the first year. *Three hours.*

Text: Stoehr.

6. Vertebrate Embryology.

The main facts in the development of a vertebrate animal are here worked out by the student for himself with the aid of explanatory lectures. A brief survey of the early stages of development, including maturation, fertilization, segmentation, and formation of the germ layers is first made upon lower forms (nematode, starfish, teleost, frog). The development of the typical vertebrate organs is then studied in chick embryos.

Elective in the second year. *Three hours (spring term).*

Texts: Foster and Balfour; Marshall.

## Anatomy.

Professors Whitehead and Mangum, Messrs. Newell and Cranmer.

The method of instruction is one of dissection and demonstration rather than of lectures. In the first year the body is studied by

systems, first the bones, then the muscles, etc. The student does much of the dissecting for himself, but the more difficult dissections are made by the instructor. Frequent practical examinations are held, upon which stress is laid, in order to enforce proper study of the cadaver. In the second year the study proceeds by regions. The student does all the dissecting, but is still under the supervision of an instructor, who examines him upon the work done, and indicates the bearing of anatomical facts upon surgical operations. During this year there is a special laboratory study of the anatomy of the central nervous system.

Text: Gray or Morris; Whitehead's *Anatomy of the Brain*.

### Physiology.

Professor MANNING.

The study of physiology is begun in the spring term of the first year, during which the physiology of digestion, the digestive glands, blood, respiration, metabolism, excretion and animal heat is considered in lectures illustrated by experiments. The study is continued in the fall term of the second year by the consideration of the physiology of the muscles and of the nervous system. During this term also the student learns the methods of experimental physiology by means of class work in the laboratory. *Three hours (each term)*.

Texts: *American Text-book*, Stewart or Kirke.

### Materia Medica.

Professor MANGUM.

This course is devoted to the study of the origin and constitution of remedial measures, their preparation and doses, and in particular their physiological action and the indications for their rational use. Opportunity will be given to students to familiarize them-

selves with the more important crude drugs and their preparations. Instruction is given by means of lectures, recitations and demonstrations. The lectures which accompany the work in Toxicology are given as a part of the course in Materia Medica.

Text: Stevens, or Hare, or Willcox and White.

### Pathology.

Professor MANNING and Mr. NEWELL.

1. Bacteriology. The student learns by practical experience the methods of cultivating, staining and identifying the principal bacteria, the pathological significance of which is explained by lectures and demonstrated by inoculation of animals. In this way the chief bacteria are studied in pure culture, after which the methods of obtaining pure cultures from mixtures of bacteria are learned. The necessary manipulations are all carried on by the student, who thus obtains a useful practical knowledge of the subject.

Text: Muir and Ritchie.

Professor WHITEHEAD and Mr. NEWELL.

2. Pathological Histology. In this course the various morbid processes which affect the tissues are discussed in lectures and studied with the microscope. The laboratory is well supplied with pathological material, and each student stains, mounts and studies a large number of sections extending over almost the whole range of pathology, upon which he is required to stand a practical examination.

### Minor Surgery.

Professor MANGUM.

The class practises the application of bandages, and learns the modern methods of dressing wounds.

Text: Davis on Bandaging.

## ENTRANCE REQUIREMENTS.

In accordance with the rules of the Association of American Medical Colleges, of which Association this school is a member, students desiring

to matriculate will be required, except under the circumstances noted hereafter, to pass the following entrance examinations:

1. In English, a composition on some subject of general interest, which must be written by the applicant at the time of examination, and must contain at least two hundred words.

2. In Arithmetic, such questions as will show a thorough knowledge of common and decimal fractions, compound numbers, ratio and proportion.

3. In Algebra, questions covering the fundamental operations, factoring, and simple quadratic equations.

4. In Latin, an examination upon such elementary work as the student may offer, showing a familiarity usually attained by one year of study.

In place of this examination or any part of it, the official certificates of high schools will be accepted.

Students who are unable to pass the above entrance examinations, may matriculate provided they are not deficient in more than one subject. The deficiencies must be made up before entering the second year. For such deficient students instruction will be provided without additional tuition fees.

## PRIZES AND SCHOLARSHIPS.

The Harris Prize. (Established in 1895). Mrs. T. W. Harris offers, in honor of the late Dr. T. W. Harris, a pocket case of instruments to that student who shall make the best grade in Anatomy.

The Wood Scholarship. (Established in 1895.) Mrs. Mary Sprunt Wood, of Wilmington, has founded, in memory of her husband, the late Dr. Thomas Fanning Wood, a scholarship of the value of ninety dollars.

## EXPENSES.

The following are the charges per term payable at the beginning of each term in September and January respectively:

| | |
|---|---|
| Tuition | $37.50. |
| Registration | $10.00. |

In addition, first-year students pay a laboratory fee in histology of $5 per term; and in chemistry of $1.25 per term. Second-year students pay a laboratory fee in chemistry of $5.00 per term.

Good board is furnished at Commons Hall for $8 per month. The rent of unfurnished rooms in the dormitories ranges from seventy-five cents to $2.75 per month, for each occupant. For each room a charge of seventy-five cents per month is made for electric light and one dollar per month for heat.

### ADMISSION AND REGISTRATION.

Candidates for admission and students already members of the school should present themselves to the President for registration on *Monday*, *Tuesday* or *Wednesday*, *September 5*, *6* or *7*, *1904*, and *Tuesday*, *Wednesday* or *Thursday January 3*, *4* or *5*, *1905*.

The session of the Medical School is of the same length as the college year, beginning September 5, 1904. and ending May 31st, 1905.

All members of the Medical School enjoy the same privileges accorded to other students in the University.

## THE DEPARTMENT AT RALEIGH.

### LOCATION AND FACILITIES.

The advantages afforded by the city of Raleigh for the advanced work of the University Medical Department are numerous. It is the most accessible of the State's larger cities and has already become one of its educational centres. Comprising, with the suburbs, a population of 25,000, it offers clinical facilities second to none in North Carolina. Two hospitals admit students of medicine for instruction. These hospitals are attended by the Faculty of the Medical Department and special care is given to individual teaching with the varied material found in them. Beside these hospitals, there are many available public institutions which furnish valuable privileges to students of medicine.

## THE CURRICULUM.

The course is arranged for two sessions of nine months each, known as the third and fourth years, as follows:

### Third Year.

Medicine. Four hours a week.
Surgery. Four hours a week.
Obstetrics. Three hours a week.
Physical Daignosis. Three hours a week.
Hygiene. One hour a week.
Clinical Pathology. One hour a week.
Dispensary. Six hours a week.
Therapeutics. One hour a week.

### Fourth Year.

Medicine. Four hours a week.
Surgery. Four hours a week.
Gynecology. Two hours a week.
Pediatrics. Two hours a week.
Clinical Pathology. Three hours a week.
Diseases of the Eye. Two hours a week.
Diseases of the Ear, Nose and Throat. Two hours a week.
Diseases of the Skin and Genito-urinary System. One hour a week.
Nervous and Mental Diseases. One hour a week (spring term).
Dispensary. Six hours a week.

These include the weekly clinics and ward classes, by means of which students receive thorough, individual, practical instruction.

## COURSES OF INSTRUCTION.

### Medicine.

Professor W. I. Royster.

This subject is taught by didactic lectures, ward classes and general

clinics. Cases are assigned to students and examinations are held upon their work. History-writing receives due attention.

In the third year are treated the Infectious Diseases, Diseases of the Blood and the Digestive System.

Individual instruction is given in the methods of physical diagnosis.

In the fourth year are studied the diseases of the Respiratory System, Heart and Kidneys and the General Diseases. There are weekly clinics and ward classes.

Texts: Osler, Tyson.

### Surgery.

Professor KNOX.

In the third year are treated the principles of Surgery, Wounds, Minor Operations, and Bandaging. Ward classes and Dispensary work furnish ample demonstrations of the subjects described in the lectures.

The fourth year is devoted to the General Practice of Surgery and the Major Operations. A special course in Anaesthetics is given to each student. At all the clinics students will be able, by personal observation at short range, to witness every step of an operation and thus familiarize themselves with the details.

Text: Wyeth.

### Obstetrics.

Professor TUCKER.

Lectures, recitations, and clinical experience. Fundamental obstetric principles receive the closest attention. A number of maternity cases are available for instructing students in the management of labor and the lying-in period.

Text: Hirst.

### Gynecology.

Professor H. A. ROYSTER.

Lectures covering the entire field of diseases of women from the

simplest procedure to the more serious operations. Illustrative clinics are held weekly. In many cases students are allowed to assist in the operations. Practice in pelvic examinations is given constantly to each student, for the purpose of enabling him to make correct gynecological diagnoses. An abundance of material is always available.

Text: Penrose.

### Therapeutics.

Dr. McGee.

The whole subject is thoroughly discussed by means of recitations and demonstrations, with constant drill on important drugs.

Text: Hare.

### Diseases of the Eye.

Professor Lewis.

This course is conducted by means of lectures with clinics and dispensary classes, and furnishes what is absolutely essential for the general practitioner. Mastery of the principles is insisted upon. An abundance of illustrative material is presented in clinics and dispensary classes.

Text: May.

### Diseases of the Ear, Nose and Throat.

Professor Battle.

Lectures and demonstrations with opportunities for investigating cases under direct supervision. A knowledge of these diseases is recognized as necessary for every physician. Particular care is devoted to personal demonstration.

Text: Bishop.

### Diseases of Children.

Lectures and bed-side demonstrations. Special emphasis is given to

the diagnosis and treatment of the infectious diseases and to the care of infants. A large number of dispensary cases are seen.

Text: Holt.

### Clinical Pathology.

Dr. MacNider and Mr. Guthrie.

Great stress is laid upon the association of laboratory technique with cases actually under observation. Examinations of blood, urine, sputum, pus, tumors, etc., are made by the student with the assistance of the demonstrators. The equipment is excellent.

Text: Simon.

### General Hygiene.

Professor Lewis.

The principles and laws of hygiene and sanitation and the most approved practical methods established by modern science. A knowledge of hygiene and sanitation is very necessary for physicians in every community. Extraordinary opportunities will be given for investigating the workings of the State sanitary laws.

Text: Bergey.

### Nervous and Mental Diseases.

Clinical Professor McKee.

Practical instruction is given in the principles of the subject from material furnished by one of the State's largest insane hospitals.

### Diseases of the Skin and Genito-urinary System.

Professor Goodwin.

Instruction is given by means of lectures, recitations and dispensary work. Attention to correct diagnosis is insisted upon. Modern methods are carefully studied.

Text: Stelwagon.

## THE CITY FREE DISPENSARY.

Dr. McGeachy, *Physician in Chief.*

By special arrangement, the city of Raleigh has allowed the establishment of a Free Dispensary, to which all the outdoor city patients come for treatment. Thus every possible case is utilized as clinical material for students of medicine. Here will be found unusual privileges of personal observation. At certain times each student may conduct the dispensary work on his own account under the direction of the instructors.

## DEGREE.

The degree of Doctor of Medicine will be conferred by the Board of Trustees upon students who are recommended for graduation by the Faculty. Candidates must have devoted at least four full years to the study of medicine and the fourth year, at least, must have been spent in this school, the other three in this or other recognized schools of medicine. Candidates must have passed satisfactory examinations in all subjects required for the degree.

## EXPENSES.

The following are the charges per term, payable at the beginning of each term:—

Tuition ..... $37.50

At graduation a charge of $5.00 is made for the diploma. Board may be obtained in the city at from $12.50 to $15.00 per month.

## ADMISSION.

Students will be admitted to the Medical Department at Raleigh upon completion of the preparatory two years' course at Chapel Hill, or its

equivalent. Preliminary examinations will be required, if deemed necessary.

Students may be admitted to advanced standing who present evidence of having fulfilled the requirements of this Department with respect to preliminary education, and of having completed at accredited medical schools the courses required in the preceding years.

## REGISTRATION.

Students should present themselves for registration on *Monday*, *Tuesday* or *Wednesday*, *September 5*, *6* or *7*, *1904*, and on *Tuesday*, *Wednesday* or *Thursday*, *January 3*, *4* or *5*, *1905*.

# THE DEPARTMENT OF PHARMACY.

## FACULTY.

FRANCIS PRESTON VENABLE, PH.D., LL.D., PRESIDENT.
EDWARD VERNON HOWELL, A.B., PH.G., *Dean and Professor of Pharmacy.*
JOSHUA WALKER GORE, C.E., *Professor of Physics.*
CHARLES BASKERVILLE, PH.D., *Professor of Chemistry.*
HENRY VAN PETERS WILSON, PH.D., *Professor of Biology.*
CHARLES STAPLES MANGUM, A.B., M.D., *Professor of Materia Medica.*
ISAAC HALL MANNING, M.D., *Professor of Physiology.*
ALVIN SAWYER WHEELER, PH.D., *Associate Professor of Organic Chemistry.*
WILLIAM CHAMBERS COKER, PH.D., *Associate Professor of Botany.*
JAMES EDWARD LATTA, A.M., *Instructor in Physics.*
CLARENCE ALBERT SHORE, S.M., *Instructor in Biology.*
ROYALL OSCAR EUGENE DAVIS, PH.D., *Instructor in Chemistry*
JOHN BUNYAN LEGWIN, *Assistant in Pharmaceutical Laboratory.*
WILLIAMS MCKIM MARRIOTT, *Assistant in Chemistry.*
WILLIAM ASBURY WHITAKER, JR., *Assistant in Chemistry.*
LUTHER BYNUM LOCKHART, *Assistant in Chemistry.*
WADE HAMPTON OLDHAM, *Assistant in Chemistry.*
GREEN RAMSEY BERKELEY, A.B., *Assistant in Biology.*

## FOUNDATION.

The Department of Pharmacy was established in 1897 and was opened for students in September of that year. Its location at the seat of the University assures to its students the most modern scientific instruction with

all the laboratory facilities of the academic department, as well as the courses of instruction in allied branches. These opportunities will meet the requirements of the large number of students who were compelled heretofore to obtain their pharmaceutical education in other States Briefly stated, the advantages are as follows:

1. Thorough, careful, *individual* instruction.

2. The practical experience derived from active work in the laboratories.

3. Intimate association with the other departments of the University, to all of which the student of pharmacy has access, and the daily contact with students pursuing various branches of learning.

4. The use of the large library and reading room and the well-equipped gymnasium.

5. The comparatively small cost at which a two-years' course may be obtained.

6. The length of the course which consists of two sessions of nine months each,—nearly a fourth longer than in many of the Colleges of Pharmacy.

The success of the students of this Department in their examinations before State Boards has been very gratifying. Students of this Department have been applicants before the State Boards of Maryland, Pennsylvania and North Carolina. None of the graduates of this Department applying for license before State Boards have failed to pass the examin ations.

## ARRANGEMENT OF COURSES.

The courses are arranged for two sessions of nine months each, and lead to the degree of Graduate of Pharmacy (PH.G.).

### First Year.

Theory and Practice of Pharmacy, Practical Course in Operative Pharmacy, Elementary Physics, Descriptive Chemistry, Physiology (optional), Lectures in Pharmaceutical Botany.

### Second Year.

Theory and Practice of Pharmacy, Practical Course in Operative Pharmacy, General Biology (optional), Materia Medica and Toxicology, Qualitative Analysis, Urinary Analysis.

## COURSES OF INSTRUCTION.

### Pharmacy.

Professor HOWELL.

1. Theory and Practice of Pharmacy. First year. *Five hours.*

   This course consists of lectures upon the following subjects, with practical demonstration and the employment of proper apparatus whenever necessary:
   Metrology, comminution, heat, evaporation, distillation, sublimation.
   Fusion, calcination, granulation, oxidation, reduction, etc.
   Solution of solids, liquids and gases; deliquescence, efflorescence, etc.
   Colation, filtration, decolorization, clarification, precipitation, etc.
   Maceration, expression, infusion, decoction, etc.
   Percolation, and the preparation and study of the following: waters, syrups, honeys, glycerites, mucilages, mixtures, spirits, elixirs, liniments, collodions, tinctures, wines, vinegars and fluid extracts.

   Text: Remington, *Theory and Practice of Pharmacy.*

2. Theory and Practice of Pharmacy. Second Year. *Five hours.*

   The official forms and preparations of drugs are taken up in detail. Beginning with the inorganic compounds, the salts are considered with regard to their commercial qualities and pharmaceutical uses and preparations. The organic compounds are studied, commencing with the salts of the organic acids and passing to the natural and organic compounds.

3. Lectures on Pharmaceutical Botany. *Two hours (spring term).*

   This course is preparatory to the study of Materia Medica, and takes up the study of the flower, the various topics of fruits, seeds, etc., and a careful study of the descriptive terms as applied to leaves, stems and roots. Instruction is given in the gathering and proper mounting of specimens of the various official herbs that grow in this vicinity.

## Materia Medica and Toxicology.

Professor HOWELL.

1. Materia Medica. Lectures on the geographical and botanical sources of drugs; descriptions and uses of the same, together with their official preparations and doses. *Three hours (fall term).*

   Opportunity is given to the student to familiarize himself with most of the crude drugs and their preparations.

   Text: White and Wilcox.

Professor MANGUM.

2. Materia Medica. This course is devoted to the study of the origin and constitution of remedial measures, their preparations and doses; and in particular, their physiological action and the indications for their rational use. Opportunity will be given to students to familiarize themselves with the more important crude drugs and their preparations. Instruction is given by means of lectures, recitations and demonstrations. The lectures intended to accompany the work in Toxicology are given as a part of the course in Materia Medica.

## Physics.

Professor GORE.

Elementary Physics. The fundamental facts of Physics are studied with some special attention to heat and electricity. Text-book, lectures and experiments. *Two hours.*

## Chemistry.

Professor BASKERVILLE, Dr. DAVIS and Mr. MARRIOTT.

1. General Descriptive Chemistry. The elements are studied in a systematic manner. The laws governing their combination, and the compounds resulting, are considered with appropriate reference to their occurrence and relationships to medicine. The latter part of

the course is taken up with organic chemistry. *First year, three hours*, lectures, and *two hours*, laboratory.

Texts: Venable and Howe's *Inorganic Chemistry According to the Periodic Law*, and Remsen's *Organic Chemistry*, supplemented by lectures and quizzes.

Associate Professor WHEELER, Messrs. MARRIOTT and WHITAKER.

9. Qualitative Analysis and Toxicology. Laboratory work with lectures. The behavior of the elements and their compounds is studied in the laboratory. Practice is given in the analysis of known and unknown mixtures with especial reference to the detection of poisons and determination of the purity of drugs. *Second year (September to February), six hours.*

Text: Venable and Wheeler's *Qualitative Chemical Analysis* and the professor's notes.

This course supplements the lectures given by Professor Mangum on Toxicology.

10. Physiological Chemistry including Urinary Analysis. Lectures and laboratory work. The latter includes examination of bones, blood, gastric and intestinal juices, bile, milk, urine and foods. *Second year (February to June), six hours.*

Texts: Halliburton's *Chemical Physiology* and Jackson's *Laboratory Methods in Physiological Chemistry.*

The following courses are not required of students in Pharmacy but may be elected profitably:

## Physiology.

Professor MANNING.

The study of physiology is begun in the spring term of the first year, during which the physiology of digestion, the digestive glands, blood, respiration, metabolism, excretion and animal heat is considered in lectures illustrated by experiments. The study is continued in the fall term of the second year by the consideration of the physiology of the muscles and of the nervous system. During this term also the student learns the methods of ex-

perimental physiology by means of class work in the laboratory. *Three hours (each term).*

Texts: *American Text-book*, Stewart or Kirke.

### Biology.

Professor WILSON.

1. General Biology. *Five hours.*

Representative types of the great groups of organisms are dissected and studied microscopically. The forms range on the one side from the unicellular animals to the vertebrates, and on the other from the unicellular plants to the phanerogams. In the lectures the forms to be studied are briefly described, the relations are pointed out, and the principles which they illustrate are explained. The fundamental facts concerning living things are thus learned directly from nature in such a way as to develop the power of accurate observation, skill in handling instruments, and method in the recording of notes.

Text: Morgan.

### Botany.

Associate Professor COKER.

9. General introduction to Systematic Botany, with special attention to medical plants. Laboratory and field work with recitations. *Three hours a week (spring term).*

Open to students of Pharmacy only.

### Prescription Filling.

Professor HOWELL.

In order that students may gain experience in prescription filling, a course in the practical every day work of a drug store and in selling poisons and filling prescriptions is given. The prescriptions selected are those that will give the largest amount of practical experience. For this course a fee of ten dollars is required, to cover the cost of ingredients, bottles, labels, etc.

## OPTIONAL COURSES.

The following optional courses may be taken on the payment of a small laboratory fee to cover cost of materials, etc.

Industrial Chemistry. Lectures. The application of chemistry to the arts and industries. *Three hours.*

This course includes metallurgy, glass making, pottery, (*fall term*) food, clothing, building materials, explosives, photography, etc., (*spring term.*)

Agricultural Chemistry. Lectures. *Three hours a week* (*spring term*).

This course includes the chemistry of the plant and the soil and the discussion of plant food, etc. Many specimens have been collected in the Industrial Museum to illustrate this course and the preceding one.

Quantitative Analysis and Assaying. Laboratory work. *Three hours.*

This course is intended to give the student a thorough grounding in analytical methods and manipulations.

Quantitative Analysis. Laboratory work. *Five hours.*

The student in this course is led further into the study and practice of analytical methods The work may take any special direction desired by him, fitting him to be an agricultural chemist, iron chemist, manufacturing chemist, physician, druggist or teacher of chemistry. Encouragement is given to the student to make original researches.

Determinative Mineralogy. Lectures with laboratory work. Dana's Text-book of Mineralogy. *Two hours.*

Bacteriology. *Six hours* (*fall term*).

The student learns by practical experience the methods of cultivating, staining and identifying the principal bacteria, and their pathological significance is explained by lectures and demonstrations by inoculation of animals. In this way the chief pathogenic bacteria are studied in pure culture on the various media, after which the methods of obtaining pure culture from mixtures of bacteria are learned. The necessary manipulations are carried out by the students, who thus obtain a practical knowledge of the subject which can be gained in no other way.

Students in Pharmacy have also the privilege of attending any of the regular academic courses.

## EXAMINATIONS.

Final examinations are held at the end of each term on the subjects embraced in the course.

An average of 70 per cent. on the intermediate and final examinations is required to pass in the various branches.

## QUIZZES.

Quizzes upon the different branches are regularly held. Specimen quizzes upon Materia Medica, Chemistry and Pharmacy are held once a week, and consist in the recognition and correct writing of the official name of the specimen presented.

Students are required to make an average of 70 per cent. on the examinations given on specimens at the close of each term.

## THE PHARMACEUTICAL LABORATORY.

### Officers.

Edward Vernon Howell, A.B., Ph.G., Director and *Professor of Pharmacy.*

John Bunyan LeGwin, *Assistant in the Pharmaceutical Laboratory.*

The rooms of the Pharmaceutical Laboratory are admirably adapted to this purpose. They are conveniently situated on the first floor, are well lighted and well equipped with water, electric lights and gas. To each student is assigned a desk, provided with lock and key and containing all the apparatus necessary for the every day work of a pharmacist. In the store room is kept a supply of materials for practical work, as well as the apparatus for the more complex operations. Ample space is provided for work at the prescription counter, where practical instruction in the compounding and dispensing of prescriptions is given.

A small deposit fee is required to cover the cost of breakage of apparatus.

At the end of the session this fee will be returned, less the amount of breakage.

## OTHER LABORATORIES.

The laboratories of Physics, Chemistry and Biology are open to students in Pharmacy. These laboratories are all equipped with the most improved apparatus for experimentation and illustration of lectures.

## READING ROOM AND LIBRARY.

The Pharmaceutical Department is provided with a well selected library and with a reading room, inaugurated by the class of 1897, in which are filed a large number of medical and pharmaceutical journals.

In addition to these advantages, students of this department enjoy the privileges of the University reading room, in which are filed all the leading newspapers and magazines, and free access to the University Library, which numbers forty-two thousand volumes and twenty thousand pamphlets.

## REQUIREMENTS FOR GRADUATION.

Every person upon whom the degree of Graduate in Pharmacy of this University shall be conferred, must have completed the work of both years in the Department of Pharmacy of this University, or one course (that of the second year) here after one in some recognized college of Pharmacy. He must obtain satisfactory marking in attendance and make a general average of 70 per cent. in the various branches, and submit a satisfactory thesis.

He must also have had a practical experience of at least four years with some qualified pharmacist or pharmacists in a dispensing store. Satisfactory evidence on this point must be submitted to the head of the Department.

Students who have not had the full four years' experience will be per-

mitted to stand examinations for graduation; but their diplomas will be withheld until they shall have satisfied this requirement.

No person will be entitled to a diploma until his dues to the University have been paid.

## THESES.

The thesis must be an original essay embodying the results of the student's personal research in some branch of pharmacy, which he has prosecuted under the direction of the professor who has assigned him the subject. The thesis will be published at the discretion of the professor. The thesis, together with certificate of time of practical experience, must be deposited with the Registrar on or before May 1.

## PRIZES.

The Bradham Prize, offered by Mr. C. D. Bradham, of Newbern, N. C., will be given to the student making the highest general average during the two years of study.

The Gilpin Langdon Prize, offered by Messrs. Gilpin Langdon & Co., of Baltimore, Md., will be given to the student making the best line of preparations in the pharmaceutical laboratory.

Prizes will also be given:

1. For the best thesis.
2. For the best collection of native medicinal herbs.
3. For the best exhibit of chemical salts made by a second year student.
4. For the best work in the recognition of materia medica specimens.
5. To the student recognizing the largest number of pharmaceutical preparations.

## EXPENSES.

The charges of each term are payable at the beginning of the term. They are as follows:

| | |
|---|---|
| Tuition | $30.00 |
| Registration and incidental fees | 10.00 |

For Chemistry 1 there is a fee of $1.25; for Chemistry 9 and 10, a fee of $5.00. In the Prescription Course there is a fee of $10.00.

The students of Pharmacy are entitled to the use of the gymnasium, the library and reading room and, in case of sickness, to medical attention and the use of the infirmary.

Good board is furnished at Commons Hall for $8.00 per month. The rent of unfurnished rooms ranges from 75 cents to $2.75 per month. For each room is made a charge of 75 cents per month for electric light and one dollar per month for heating.

## ADMISSION AND REGISTRATION.

Candidates for admission into the Department of Pharmacy should present themselves on the same days and at the same hours with candidates for admission into the College. For the next academic year, these days will be *Monday*, *Tuesday* or *Wednesday*, *September 5*, *6* or *7*, *1904*, and *Tuesday*, *Wednesday* or *Thursday*, *January 3*, *4* or *5*, *1905* The session of the Department of Pharmacy is of the same length as the College year beginning *September 5*, *1904*, and ending *May 31*, *1905*.

The members of the Department of Pharmacy enjoy all the privileges extended to other students in the University.

# STUDENTS IN MEDICINE.

| NAME. | YEAR. | RESIDENCE. |
|---|---|---|
| Abernethy, Claude Oliver, B.S., 1902, | *Second*, | Chapel Hill. |
| Andrews, Junius Marvin, | *First*, | Asheboro. |
| Apgar, Raymond, | *First*, | Allentown, Pa. |
| Barefoot, Julius Jackson, | *First*, | Wilson. |
| Belt, Townsend Wentworth, | *Second*, | Leesburg, Va. |
| Berkeley, Green Ramsey, A.B., 1903, | *Second*, | Atlanta, Ga. |
| Best, Henry Blount, | *First*, | Wilson. |
| Brenizer, Addison Gorgas, Jr., | *First*, | Charlotte. |
| Browne, Alfred Dana, | *First*, | Philadelphia, Pa. |
| Chalfant, Harry Bailey, | *First*, | Stroudsburg, Pa. |
| Clement, Edward Buehler, S.B., 1903, | *Second*, | Salisbury |
| Conwell, Charles Everett, | *Third*, | Raleigh. |
| Cranmer, John Bensell, | *Third*, | Chapel Hill. |
| Dick, Julius Vance, | *First*, | Whitsett. |
| Donnelly, John, | *Third*, | Charlotte. |
| Engel, William Royal, | *Second*, | Cleveland, O. |
| Farrar, Mont Royal, | *Third*, | Greensboro. |
| Farthing, Logan Elmore, | *Second*, | Boone. |
| Freedman, Theodore, | *First*, | New York City. |
| Glenn, Marshall Renfro, S.B., 1903, | *First*, | Asheville |
| Guthrie, Marshall Crapon, Jr., | *Fourth*, | Southport. |
| Hiatt, Houston Boyd, | *First*, | Clinton. |
| Hobgood, James Edward, | *First*, | Oxford. |
| Hocutt, Battle Applewhite, | *Second*, | Wakefield. |
| Hyatt, Frederick Carlyle, | *First*, | Waynesville. |
| Jones, Harry Murray, A.B., 1903, | *Second*, | Franklin. |
| Jordan, William Stone, | *Second*, | Raleigh. |
| Kibler, William Herbert, | *First*, | Morganton. |
| Kimball, Thomas Manly, | *First*, | Wakefield. |
| Knox, John, Jr., | *Second*, | Pineville. |

| | | |
|---|---|---|
| Kuttner, Theodore, | *Second*, | New York City. |
| Leinbach, Robert Frederick, | *First*, | Winston-Salem. |
| Long, Thomas William Mason, | *First*, | Garysburg |
| McIver, Evander McNair, | *First*, | Jonesboro. |
| McLean, Peter, | *Second*, | Laurinburg. |
| Mann, James Emery, | *Second*, | Fairfield. |
| Maness, John Moses, | *First*, | Hemp. |
| Mayerberg, Israel Wallace, | *First*, | Goldsboro. |
| Merritt, John Hamlett, | *Second*, | Roxboro. |
| Moore, Charles Edward, | *First*, | Rural Hall. |
| Moore, Joseph Newit, | *Third*, | Saratoga. |
| Newell, Leone Burns, A.B., 1900, | *Third*, | Newell. |
| Noble, Robert Primrose, | *First*, | Selma. |
| Patterson, Joseph Flanner, | *Second*, | Newbern. |
| Plummer, Alson Lindsay, | *Second*, | Jones Mine. |
| Query, Richard Zimri, | *First*, | Derita. |
| Rice, Wilbur Calhoun, | *First*, | Sydney, Fla. |
| Rose, Abraham Hewitt, | *Second*, | Smithfield. |
| Ross, William Bascom, | *First*, | Pleasant Garden. |
| Royster, Thomas Hayes, | *First*, | Buchanan. |
| Sharpe, Frank Louis, | *Fourth*, | Statesville. |
| Sheep, William Lloyd, | *Second*, | Elizabeth City. |
| Sherman, Joshua, | *Second*, | New York City. |
| Shore, Clarence Albert, S.M., 1902, | *First*, | Winston-Salem. |
| Smith, William Hopton, | *Second*, | Goldsboro. |
| Speight, Joseph Powell, | *Second*, | Whitakers. |
| Stanly, John Haywood, Jr., | *Fourth*, | Four Oaks. |
| Starnes, Brand, | *Second*, | Asheville. |
| Stevens, Ralph Sanders, | *Third*, | Smithfield. |
| Strickland, Jesse Armed, | *First*, | Wilson. |
| Tankersley, James William, | *Second*, | Salisbury. |
| Upchurch, Caley Geoffrey, | *Second*, | Apex. |
| Vick, George Davis, | *Second*, | Selma. |
| Ward, Ivie Alphonso, | *First*, | Ryland. |
| Ware, Major Lee, | *First*, | Kings Mountain. |
| Warren, John Waddell, | *First*, | Edenton. |

| | | |
|---|---|---|
| Webb, Lorenzo Stevenson, | *Third*, | Wilmington. |
| Wilkerson, Charles Baynes, | *Second*, | Roxboro. |
| Willcox, Jesse Womble, PH.B., 1903, | *Second*, | Putnam. |
| Williams, John Watkins, | *Second*, | Washington. |
| Willis, Arthur Pender, | *Fourth*, | Mars Hill. |
| Woodard, Albert Gideon, | *First*, | Princeton. |

# STUDENTS IN PHARMACY.

| Name. | Year. | Residence. |
|---|---|---|
| Abernethy, Benjamin Scott, | *First*, | Chapel Hill. |
| Atkins, Donah Josiah, | *First*, | Durham. |
| Barkley, Dennis Edward, | *First*, | Jackson. |
| Barnes, Edwin Wilmer, | *Second*, | Kings Mountain. |
| Brown, James Dulon, | *First*, | Goldsboro. |
| Cannon, Claudius Lillington, | *Second*, | Ayden. |
| Chapman, David Simeon, | *First*, | Winterville. |
| Clements, William Jasper. | *Second*, | Durham. |
| Cooke, Henry Maddrey, | *First*, | Murfreesboro. |
| Coppedge, Oliver Thomas, | *First*, | Cedar Rock. |
| Ellington, Richard Alexander, | *First*, | Reidsville. |
| Flagler, Clarence, | *First*, | Stroudsburg, Pa. |
| Gardner, Elmer John, | *First*, | Ayden. |
| Graves, Yancey Baze, | *Second*, | Mount Airy. |
| Hall, Percy Opie, | *First*, | Wilmington. |
| Hardee, Aldridge Kirk, | *First*, | Itiner. |
| Hicks, Oscar Vernon, | *Second*, | Goldsboro. |
| Hicks, William Jacob, | *Second*, | Goldsboro. |
| Hoffmann, Solomon Wallace, | *Second*, | Statesville. |
| Hoffman, William Herbert, | *First*, | Statesville. |
| Howell, John Thomas, | *Second*, | Kenly. |
| Hudson, John Edgar, | *Second*, | Elkin. |
| Jenkins, Joseph Van, | *Second*, | Rocky Mount. |
| Jones, Harvey McNair, | *First*, | Greenville. |
| King, Charles Hiram, | *First*, | Durham. |
| LeGwin, John Bunyan, | *Second*, | Wilmington. |
| Lynch, Norman Walker, | *First*, | Bessemer City. |
| McKinney, William Merrimon, | *First*, | Charleston, S. C. |
| Marsh, Noma Franklin, | *First*, | Hughes Springs, Tex. |
| Martin, Earle Wall, | *Second*, | Morven. |

| | | |
|---|---|---|
| Millis, James Edward, | *First*, | High Point. |
| Moore, Charles Ernest, | *First*, | Wilson. |
| Palmer, Robert Rodwell, | *First*, | Chapel Hill. |
| Parker, Albert Frederick, | *First*, | Waynesville. |
| Parker, Roland Hurn, | *First*, | Durham. |
| Patterson, Wallace Denham, | *Second*, | Chapel Hill. |
| Payne, Maxwell Tull, | *First*, | Morganton. |
| Phifer, Marcus Andrew, | *First*, | Marshville. |
| Pickelsimer, Jesse Benjamin, | *First*, | Brevard. |
| Pike, Joseph William, | *First*, | Brim. |
| Pope, Julian Alexander, | *Second*, | Lumberton. |
| Richardson, Luther Wyatt, | *Second*, | Kenly. |
| Ring, Luther Brandson, | *First*, | Elkin. |
| Scoggin, Lewis Edward, | *First*, | Warrenton. |
| Seawell, Charles Carson, | *First*, | Parkwood. |
| Sedberry, Henry Burdsong, Jr., | *First*, | Fayetteville. |
| Smith, John McNeill, | *Second*, | Laurinburg. |
| Sykes, John Allen, | *First*, | Greensboro. |
| Tart, David Whitfield, | *First*, | Dunn. |
| Thrower, Hiram Eldridge, | *First*, | Henderson. |
| Upchurch, Robert Theodore, | *First*, | Apex. |
| White, John Elmer, | *First*, | Waynesville. |
| Wilkins, William Robert, | *First*, | Kings Mountain. |
| Winder, William Ray, | *First*, | Elizabeth City. |
| Woodcock, Rufus Johnston, | *First*, | Asheville. |